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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,362	09/28/2006	Klaus Endres	P30186	8426
7055 7590 11/10/2011 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER				
LI, AIQUN				
ART UNIT		PAPER NUMBER		
1763				
NOTIFICATION DATE		DELIVERY MODE		
11/10/2011		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary**Application No.**

10/587,362

Applicant(s)

ENDRES ET AL.

Examiner

AIQUN LI

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 33-54 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 33-54 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)
Paper No(s)/Mail Date 5/2/2011.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

1. Claims 33-54 are pending as amended on 10 October 2011, claims 1-32 being cancelled.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Applicant's amendments to the claims and the remarks/arguments filed 10 October 2011 have been entered and fully considered.

Response to Amendment and Arguments

4. Applicant's amendments cancelling claims 11-32 render the rejections of claims 11-32 moot.

5. Applicant's arguments in light of the amendments have been fully considered.

Applicant argues that US Patent 5734000 (Popall) fails to disclose to use the lacquer for the consolidation of porous and/or particulate material. Popall discloses the lacquer can be mixed with clay, glass fibers, glass flakes, talc (col.7, line 55-65 and Example 8), which meets porous or particulate/granule material, and applied to a substrate including metal and ceramics (col.10, line 10-15), which meets the consolidated/molded articles since the substrate has a geometric form.

Applicant's other arguments are moot in view of the new ground(s) of rejection.

Double Patenting

6. **Claims 33-38 and 50-54** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 5, 10-12, 14-15, 23, 24, 26, 28, 31-33 of US Patent 7825074. Although the conflicting claims are not identical, they are not patentably distinct from each other. For example, the instant claims recites the same process of consolidating a geological formation as the patented claims while the patented claims differ in specifying the amount of the individual components, elevated temperature and pressure and therefore anticipates the instant claims.

7. **Claims 39-49** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 34, 37, 49-50, 54, 56-57, 59, 62-63, 67, 69 and 71-72 of copending Application No. 11721201. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both drawn to the same consolidating agent and molded articles while the copending claims specifying the amount of the individual components and coating temperature and pressure therefore anticipates the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

8. **Claims 37 and 43** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 37 and 43 improperly recite the Markush group in the form of "selected from A, B and C", which renders the claim indefinite because it is unclear which members of the group are part of the claimed invention. A proper Markush groups may be recited as "...selected from the group consisting of A, B and C" or "...selected from A, B or C." See MPEP § 2173.05(h).

Claim Rejections - 35 USC § 102

9. **Claims 39-41, 43, 44, 46, 48 and 49** are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5734000 (Popall).

Regarding claims 39, 40, 44, 46, 48 and 49, Popall teaches a silicon lacquer can be mixed with clay, glass fibers, glass flakes, talc (col.7, line 55-65 and Example 8), which meets porous or particulate/granule material, applied to a substrate including metal and ceramics (col.10, line 10-15) and then cured (col. 8, line 18-27 and Example 8).

Popall teaches the silicon based lacquer can be obtained by precondensation and hydrolysis of : at least one compound of the formula SiR_4 , wherein R is halogen, hydroxyalkoxy, acyloxy (col. 3, line 25-35), exemplified as tetraethoxysilane, which

meets the instantly claimed formula (II); at least one organic silane of the formula R''_pSiX_{4-p} , wherein R'' is alkyl, alkenyl, aryl, alkylaryl, alkenylaryl, etc., X is hydroxyl, halogen, alkoxy, acyloxy, p is 1, 2 or 3 (col. 3, line 35-58), which meets the instantly claimed formula (I). Popall discloses that the aryl group is preferably being phenyl (col.4, line 25-30), which meets the instantly claimed R radicals, and exemplifies the lacquer comprising diphenylsilanediol being clear (Example 1, col.10, line 60-65), which meets the limitation of particle-free.

Regarding claim 41, Popall further discloses that the lacquer is obtained by precondensation and hydrolysis of an arylsilane (col.5, line 64-65 and claim 24), tetraethoxysilane (col.4, line 60-65 and claim 21), which meets the limitation of an orthosilicic ester, and an organic silane of formula $R''_m(R'''Y)_nSiX_{(4-m-n)}$ wherein m and n are integers from 0 to 3 (col.3, line 35-50 and claim 18), which meets the limitation of an alkylsilane when n is 0 and R'' is alkyl.

Regarding claim 43, Popall discloses that the lacquer is prepared in the presence of at least one metal oxide soluble in the reaction medium of main groups Ia to Va or subgroups IVb or Vb of the periodic table (col.3, line 60-65) including Na, K, B, Al, Sn in the form of hydroxide or alcoholate such as NaOR, KOR, or Al(OR)₃, which meets the instantly claimed formula (II) and metal compounds.

Allowable Subject Matter

10. **Claims 33-36, 38, 42, 45, 47 and 50-54** would be allowable provided a terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) is timely filed to overcome the rejection based on a nonstatutory double patenting ground set forth in this Office action.

11. **Claims 37** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims, provided a terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) is timely filed to overcome the rejection based on a nonstatutory double patenting ground set forth in this Office action.

12. The following is an examiner's statement of reasons for allowance:

Regarding claims 33-38 and 50-51, US Patent 6513592 (Espin'592), US Patent 5734000 (Popall), and US Patent 4308371 (Tanaka) are the closest prior art of record.

Espin'592 discloses a process for consolidating sand formations by injecting nanoparticles modified by silanes but are silent on injection of a particle-free consolidating agent.

Popall and Tanaka teach the particle free organosilanes but are silent on consolidating sand formation with the organosilanes.

None of Espin'592, Popall or Tanaka teaches or fairly suggests a process of using a particle-free consolidating agent comprising the instantly claimed organosilanes to consolidate a geological formation.

Regarding claims 52-54, Espin'592 and US Patent 6287639 (Schmidt' 639).
are the closest prior art of record.

Espin'592 discloses a process for consolidating sand formations by injecting nanoparticles modified by silanes but are silent on injection of cured molded articles.

Schmidt'639 teaches a silane consolidated molded article wherein the substrate includes sand but is silent on particle free silane agent and injection of molded articles into a geological formation.

Neither Espin'592 nor Schmidt'639 teaches or fairly suggests a process of using a molded article consolidated by organosilanes to consolidate a geological formation.

Regarding claims 42, 45 and 47, Popall and Tanaka are the closest prior art of record.

Popall teaches particle free organosilanes prepared from an arylsilane and tetraethoxysilane, and porous substrates including clay and glass but are silent on sand or sandstone substrate and the specific silanes made from the combination of methyltriethoxysilane, phenyltriethoxysilane and tetrahydroxysilane.

Tanaka teaches particle free organopolysiloxane obtained by hydrolyzing condensation of one or a mixture of two or more alkoxysilanes including methyltriethoxysilane, phenyltriethoxysilane and tetraethoxysilane, and exemplifies the combination of methyltriethoxysilane and phenyltriethoxysilane. Tanaka further discloses the organopolysiloxane can be employed for forming a molded product. Tanaka is silent on sand or sandstone substrate.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AIQUN LI whose telephone number is (571)270-7736. The examiner can normally be reached on Monday -Thursday, 9:00 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)2721398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. L./
Examiner, Art Unit 1763

/Timothy J. Kugel/
Primary Examiner, Art Unit 1765